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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,706

05/17/2007

Susumu Tsukamoto

2006\_1404A

3816

513 7590 06/02/2011  
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EXAMINER

PAIK, SANG YEOP

ART UNIT

PAPER NUMBER

3742

NOTIFICATION DATE

DELIVERY MODE

06/02/2011

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ddalecki@wenderoth.com  
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<b>Office Action Summary</b>	<b>Application No.</b> 10/590,706	<b>Applicant(s)</b> TSUKAMOTO ET AL.	
	<b>Examiner</b> SANG PAIK	<b>Art Unit</b> 3742	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukamoto et al (US 2004/0026381) in view of Terada et al (US 5,155,329), Chou et al (US 5,961,859), and Kearney (US 4,446,354).

Tsukamoto shows the laser welding method claimed including a laser that is set to control a varied waveform and frequency of the welded portion to prevent weld defects wherein the frequency of the laser output is conformed to the frequency of the welded portion/component such as a molten metal (see page 2, [0032]). Tsukamoto further shows that the laser output is varied including a first laser output  $W_p$  and a second output  $W_B$  as shown in Figure 4 and controlled to achieve a desired peak output  $W_p$  to increase the amplitude of the welded component (see [0034] to [0036]), and the setting of the laser output so that the light emission strength becomes to a minimum threshold is shown to be about 10 ms that is between the threshold minimum to a rise time  $T_u$ .

But, Tsukamoto does not show the method of detecting a time change in light emission strength of plasma or plume generated from the welded portion to obtain the amplitude of frequency component.

Terada shows that it is known in the art that the welded conditions are monitored and determined by the light intensity emitted from the welds and that the time change of the light intensity correlates with the varying waveforms of the laser as illustrated in Figures 4 and 6 wherein Terada also shows the laser out that correlates with the light emission strength which is set to a minimum threshold value in about 9 ms (column 4, lines 33-43). Chou also shows that it is well known in the art that the welded condition such as the size of the weld plasma is monitored and determined by the intensity of the light emission of the welded portion (see abstract, and also see column 3, lines 8-18). Kearney also shows that it is well known that the amplitude and wavelength of radiation emitted by the welding arc or plasma is detected by a sensor to determine the welded portion conditions.

In view of Terada, Chou, and Kearney, it would have been obvious to one of ordinary skill in the art to Tsukamoto with analyzing the frequency and amplitude of the welded portion/component by detecting the time change in the light emission strength of the welded portion wherein the intensity of the light emission is known to be correlated with the plasma size or amplitude of the welded portion/component wherein the variation of the light emission is also shown to be representation of the laser output such it would have been obvious to one of ordinary skill in the art to adapt the laser output in Tsukamoto is set or controlled to increase or achieved a desired maximum

Art Unit: 3742

amplitude of the frequency of the welded portion/component and further prevent weld defects.

***Response to Arguments***

3. Applicant's arguments filed 6/23/10 have been fully considered but they are not persuasive.

The applicant argues the applied art does not teach the recites steps of "detecting", "analyzing", and "setting" steps. But, this argument is not deemed persuasive since as Tsukamoto performs the laser output that is set based on the oscillation frequency of the molten metal/component wherein the oscillation frequency is detected and analyzed via x-ray examinations for weld-defects and that the welding performance is further analyzed when irradiated with laser output WB and WP in terms of defect occurrence ratio. Thus, Tsukamoto shows a basic detecting, analyzing, and setting steps wherein the secondary references Terada, Chou, and Kearney have been applied to teach an alternative means that is known in the art for detecting and analyzing the welding conditions in terms of time change in light emission strength that would be correlated to the laser output. Such teaching would have been applicable to Tsukamoto as stated in the ground of rejection. Thus, the applicant's arguments are not deemed persuasive.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANG Y. PAIK whose telephone number is (571) 272-4783. The examiner can normally be reached on M-F (9:00-5:00).

Art Unit: 3742

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571) 272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SANG Y PAIK/

Primary Examiner, Art Unit 3742